

## Unit 3: Forces Study Guide

Describe each of the following types of forces and provide an example from everyday life for each type of force:

1. Friction:

2. Air resistance:

3. Normal force:

4. Gravity:

5. Applied force:

6. Tension:

7. Buoyancy:

8. Centripetal force:

Draw a force diagram for each of the following: (be sure to label each force, and size and direction of each arrow is important)

1. Car speeding up to the right

2. Person running to the left

3. ball rolling across the tennis court to the left

4. A canoe moving to the right

5. a car stopped at an intersection

6. a baseball being thrown to the right

7. a rope being pulled from both ends

8. an airplane flying to the left

Describe each law of motion and provide an example from everyday life of each law:

1. Newton's 1<sup>st</sup> Law:

2. Newton's 2<sup>nd</sup> Law

3. Newton's 3<sup>rd</sup> Law

Calculate the following:

1. If you apply a 22 N force to a 2.5 kg object, what is the acceleration of the object?

2. If you apply a force of 55 N to an object and it accelerates  $3.2 \text{ m/s}^2$ , what is the mass of the object?

3. If you push an object that has a mass of 12.2 kg and it accelerates  $3.4 \text{ m/s}^2$ , what is the force of the push?

4. If you increase the force acting on an object (assume mass stays the same), what will happen to the acceleration?

5. If you increase the mass of an object (assume force stays the same), what will happen to the acceleration?

Describe your routine for getting ready for school in the morning including types of forces in your description.